



CHAPTER 8.0 SYSTEM ALTERNATIVES ANALYSIS AND EVALUATION

This chapter presents the regional travel demand model assumptions, performance analysis, and evaluation of the two System Alternatives identified in Chapter 7.0. The evaluation criteria elements developed in Phase I of the study were used to assess the System Alternatives performance and to compare them to the 2030 Beyond scenario.

8.1 SYSTEM ALTERNATIVES MODEL ASSUMPTIONS

Regional travel demand model assumptions are important in establishing the framework for the future travel projections. The two major inputs are the socioeconomic characteristics and the roadways and transit system characteristics.

8.1.1 Socioeconomic Characteristics

During Phase I, the 2030 Beyond population and employment characteristics were developed for the study area. Jurisdictions and area stakeholders provided future development plans and projected growth that reflected known future plans as of August 2007. These projections were used in the alternatives analysis. A note must be made regarding changes that occurred in Kennecott Land's growth strategy during the course of the study. The changes primarily affected the location and timeline of the various phases of the development. Since this study is considering the long-range horizon need, the full growth projections provided by Kennecott Land were assumed to be in place by the 2030 Beyond horizon year, regardless of location, and the corresponding data was not altered.

Additionally, various jurisdictions within the study area, such as Bluffdale, Herriman, Riverton, and West Jordan continued to assess their transportation plans and jurisdictional boundaries. They changed and updated these plans during the study timeframe. The results of this study may not reflect all of these changes.

8.1.2 Roadways and Transit System Characteristics

The Wasatch Front Regional Council (WFRC) regional travel demand model developed in Phase I was used to obtain the future travel forecasts for both alternatives. First, the *Wasatch Front Regional Transportation Plan: 2007-2030 (2030 RTP)* network used in the generation of 2030 Beyond scenario travel projections was updated to incorporate the improvement projects common to both alternatives. Then, two distinct roadway systems were created to reflect the improvements illustrated in Figure 7-7 and Figure 7-8, respectively.

Transit improvements were categorized into "extension to existing or already programmed improvements" or "new corridors identified during this study." The



Utah Transit Authority (UTA) was consulted regarding the transit service type and characteristics in both instances. The former was coded the same as the already established line. New corridors took the characteristics of similar facilities under similar urban conditions.

8.2 ANALYSIS

Technical, environmental, and economical analyses were performed for the two alternatives. It was important to identify early in the study process information regarding these elements helpful to the Stakeholder Working Group (SWG) and study team in development of potential improvements.

8.2.1 Future Traffic Projections

Model runs were performed using the 2030 Beyond socioeconomic conditions and Alternative 4 and Alternative 5 transportation systems to obtain the respective future traffic projections. Similarly to Phase I, the evaluation measures that were calculated and summarized were corridors travel time, level of congestion, screenline volumes, and vehicle miles traveled (VMT) and vehicle hours traveled (VHT).

8.2.2 Environmental Overview

In order to identify potential relocations associated with the System Alternatives, a footprint of each improvement per alternative was overlaid onto an aerial map of the study area. This overlay provided the opportunity to systematically review each improvement and identify where the various improvements impacted the human-made and environmental areas.

8.2.3 Process Used to Identify Potential Relocations

When identifying potential commercial and residential relocations, some general assumptions were made. First, because the overlay maps were based on two different coordinate points (aerial and GIS), the footprints did not always directly line up with the right-of-way that was shown on the aerial maps. Also, the footprint of the improvements could not be shifted to more appropriately address an impact to one side of the road, which would more likely be how any relocations would be addressed if the improvements were carried forward. Because the aerial maps could not clearly indicate if it was a commercial or residential location, it was assumed that at intersections it was a commercial taking, and between the intersections it was a residential taking. While this methodology was sufficient for identifying relocations for the East-West Transportation Planning Study, a more thorough and precise method will need to be undertaken if any of these improvements are further analyzed. Table 8-1 summarizes the potential relocations for each alternative.

**Table 8-1. Potential Relocations by Alternative**

	Residential	Commercial	Total
Alternative 4	671	133	804
Alternative 5	821	124	945

8.3 EVALUATION

8.3.1 Model Results for the Alternatives

Each alternative was evaluated to determine the performance of the multimodal system with respect to standard industry criteria, as well as potential economic impact to the area. The following technical analyses were performed for each alternative.

- Traffic Volumes and Level of Service (LOS)
- Screenlines
- Corridors Travel Time
- VMT and VHT

8.3.1.1 Traffic Volumes and Level of Service

The forecasted traffic volumes and corresponding level of service (LOS) for Alternatives 4 and 5 are displayed in terms signifying the degrees of congestion (extremely congested, highly congested, congested) in Figure 8-1 and Figure 8-2. Traffic projections and LOS results for the 2030 Beyond scenario are shown in Figure 8-3. Comparing the alternatives to the 2030 Beyond results, it can be seen that Alternative 4 displays some congestion improvement along I-15, Mountain View Corridor, and Bangerter Highway south of 11800 South. Minor arterial congestion relief can also be seen throughout the study area. Alternative 5, however, shows marked improvements along I-15, Mountain View Corridor, and Bangerter Highway. Arterials in the study area also display significant improvement in the LOS.



Figure 8-1. Alternative 4 Level of Service (LOS) and Daily Traffic Volumes

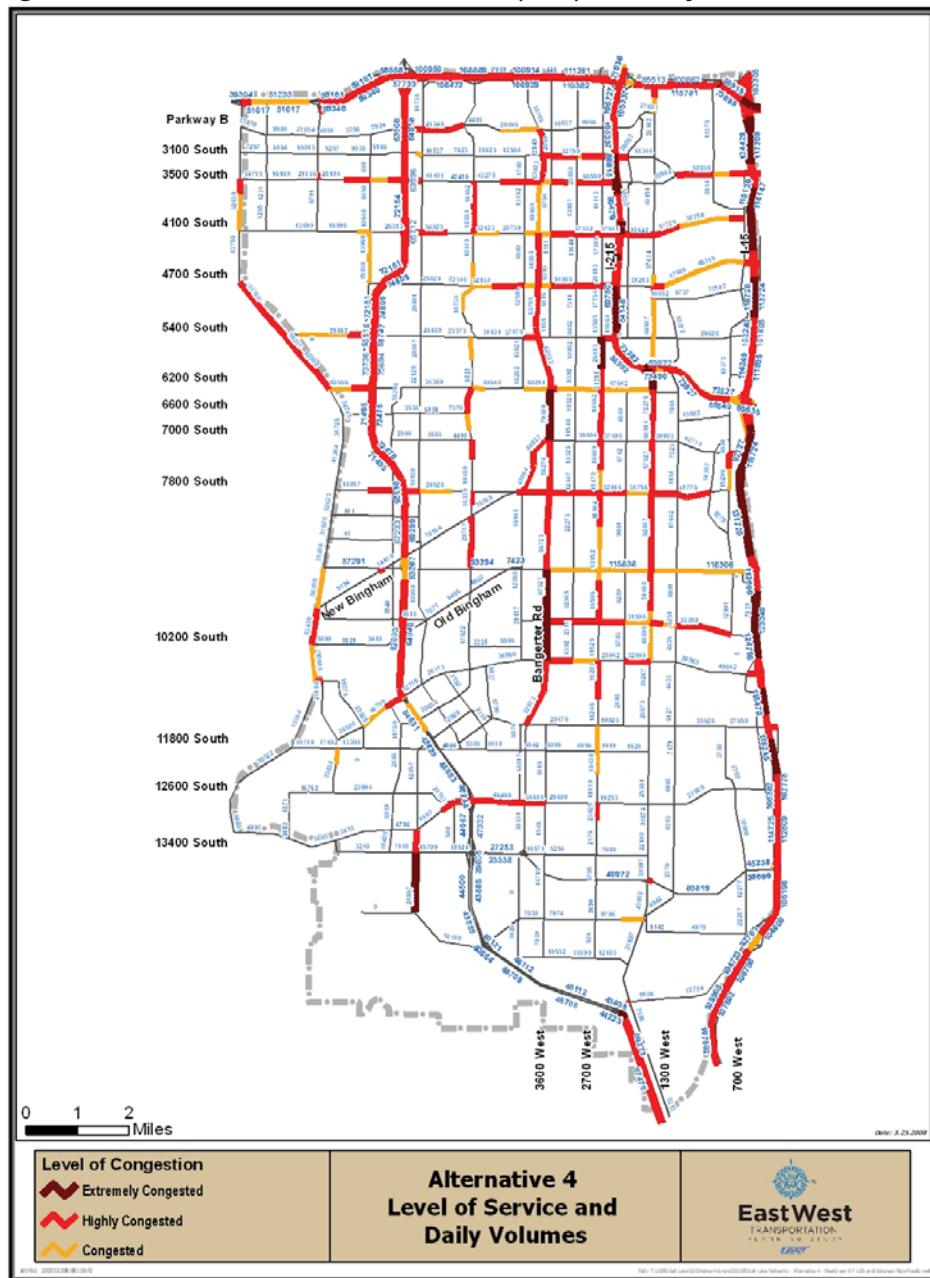




Figure 8-2. Alternative 5 Level of Service (LOS) and Daily Traffic Volumes

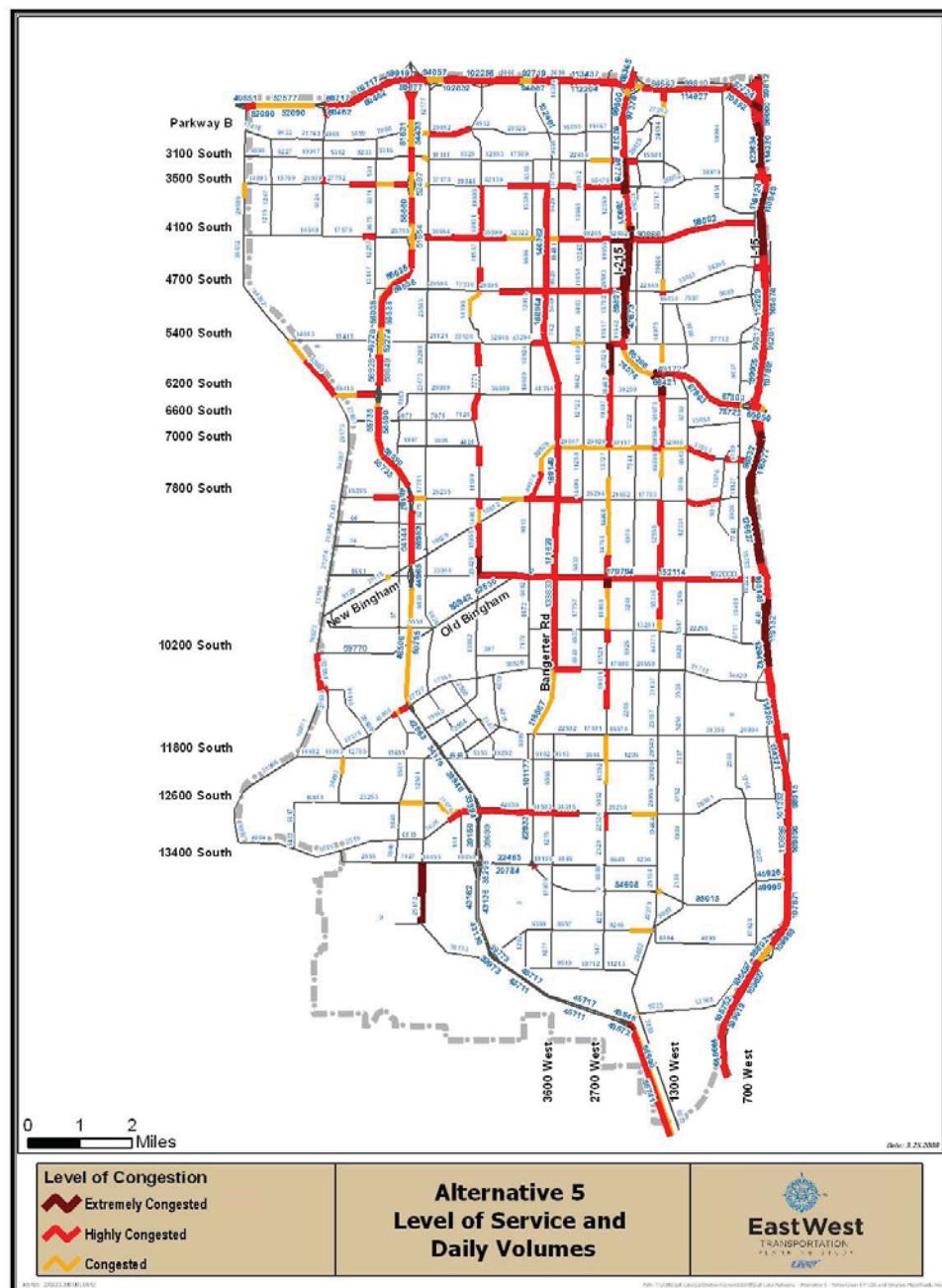
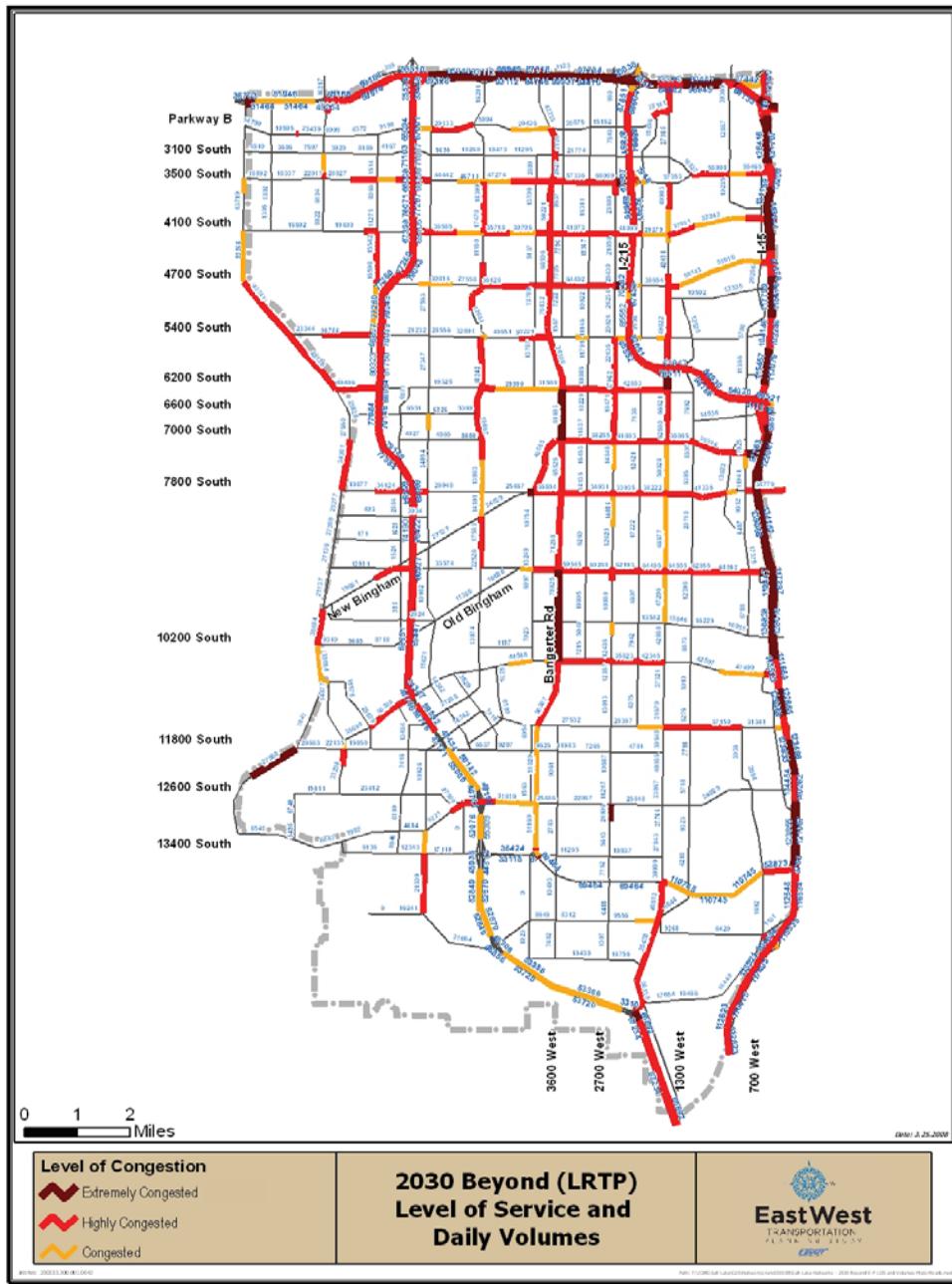




Figure 8-3. 2030 Beyond Level of Service (LOS) and Daily Traffic Volumes





8.3.1.2 Screenline Analysis

The screenline analysis was used to identify the east-west and north-south demand and supply travel characteristics. The demand was given by the future traffic volumes on the facilities crossing the screenline (links); the supply was provided by the available roadway lanes and transit service operating on the facilities crossing the same screenline. The LOS was then calculated for each individual link in the screenline. Figure 8-4 shows the screenline locations (links) used in the analysis. Individual locations with LOS E and F are highlighted in yellow for easy identification. To determine the performance of the alternatives, a comparison of the overall results was conducted between the 2030 Beyond scenario and each of the alternatives. The north-south screenlines contain a total of 80 roadway links, while the east-west screenlines contain a total of 67 roadway links. Table 8-2 shows the number of locations displaying LOS E and F for the east-west and north-south screenlines.

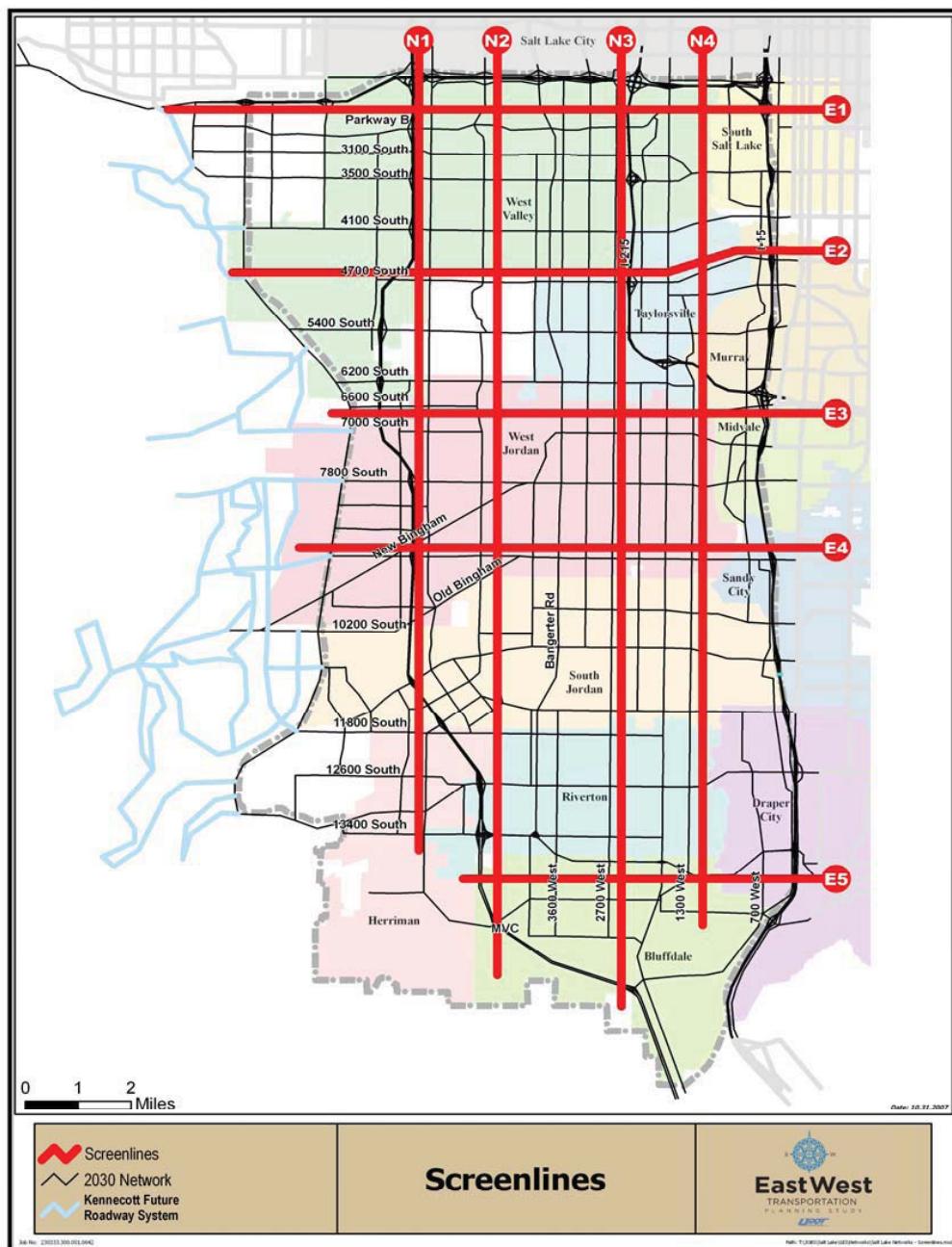
Table 8-2. Screenline Locations With LOS E or F

Screenlines	2030 Beyond	Alternative 4	Alternative 5
North-South (80 Links)	40	29	24
East-West (67 Links)	35	34	28

As illustrated, Alternative 5, which contains suggested improvements favoring arterial and freeway widening, displays the higher benefit in this particular analysis by reducing the number of the overall congested links. This information suggest that Alternative 5 system improvements represent the most benefit because it has the fewest number of remaining highly congested locations (links).



Figure 8-4. Location of Screenlines Used for Demand and Supply Travel Analysis



**Table 8-3. 2030 Beyond Screenline Volumes and LOS—North-South Facilities**

Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	
N1	SR 201	92619	78900	C	N3	SR 201	223487	183700	F	
	Parkway B	16121	12400	D		Parkway B	22149	34500	F	
	3100 South	13521	13500	D		3100 South	29141	44100	F	
	3500 South	55398	50400	F		3500 South	84327	84300	F	
	4100 South	38830	33800	F		4100 South	41192	43500	F	
	4700 South	30522	27400	D		4700 South	82970	81000	F	
	5400 South	21558	43400	D		5400 South	47917	60000	F	
	6200 South	23987	24000	D		6200 South	43244	36000	F	
	6600 South	6369	6400	C		7000 South	43726	43700	F	
	7000 South	4083	4100	C		7800 South	34312	35700	F	
	7800 South	36478	33500	F		9000 South	62159	70400	F	
	8200 South	3012	3000	C		9800 South	12764	10500	D	
	8600 South	114	1000	B		10400 South	36142	40500	F	
	New Bingham	22695	32500	E		11400 South	27847	27800	D	
	9000 South	45566	45500	D		11800 South	4976	5000	C	
	9800 South	3715	3700	C		12600 South	28400	22200	D	
	Old Bingham	6923	6900	C		13400 South	10258	10300	D	
	10200 South	35975	36000	D		Bangerter	72049	69100	C	
	MVC	124555	115000	E		14400 South	8856	13600	D	
	11400 South	20919	20900	C		MVC Arterial	16746	16700	F	
	11800 South	23302	23000	D		MVC	107745	107800	E	
	12600 South	34873	37200	F		Total	-	1040407	1040400	-
	13400 South	9017	9000	C		SR 201	188743	174100	F	
Total	-	670152	661500	-		3300 South	55748	69200	F	
N2	SR 201	188733	173700	F		Meadow Br	32270	32300	E	
	Parkway B	5401	5400	C		Taylors	51043	51000	F	
	3100 South	10669	10700	C		Murray Ta	12486	12500	D	
	3500 South	48137	58200	F		5400 South	34281	50300	F	
	4100 South	35332	35300	F		I-215	179020	164100	F	
	4700 South	39213	39200	F		Winchester	15153	15200	E	
	5400 South	40431	40400	D		7000 South	40566	28800	D	
	6200 South	31504	29400	D		7800 South	41248	41200	F	
	7800 South	25692	30300	D		9000 South	65293	76700	F	
	New Bingham	26377	26400	D		9800 South	16286	16300	F	
	9000 South	40155	42600	D		10600 South	46922	46900	E	
	Old Bingham	7964	8000	C		11400 South	36514	36500	F	
	10200 South	32791	32800	C		12300 South	25258	31400	E	
	11400 South	30375	30400	C		Bangerter	112809	111200	E	
	11800 South	10079	10100	D		14600 South	6434	2400	C	
	12600 South	39610	39600	F		Total	-	960074	960100	-
	13400 South	32722	32700	A						
	14400 South	11199	11200	C						
	MVC	107745	107800	E						
Total	-	764129	764200	-						

Summary:

40 of 80 locations are over capacity



Table 8-4. Alternative 4 Screenlines Volumes and LOS—East-West Facilities

Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	
E1	9200 West	18255	18300	F	E3	Hwy 111	29871	29900	D	
	8400 West	37702	37700	D		MVC	171770	157500	F	
	8000 West	0	8800	C		6000 West	6226	6200	C	
	7200 West	29026	29000	D		5600 West	29135	29100	D	
	MVC	154191	142000	E		4800 West	20006	20000	F	
	5600 West	15398	15400	C		Bangerter	82202	82200	F	
	4800 West	27664	27700	D		3200 West	12027	15100	E	
	Bangerter	41956	46900	E		2700 West	17761	11500	D	
	3600 West	6206	9900	C		2200 West	7371	17700	F	
	3200 West	22542	19400	C		Redwood	62948	57500	F	
	2700 West	972	8200	C		1300 West	17481	15700	F	
	I-215	175863	148700	E		700 West	16745	16800	F	
	Redwood	55806	67100	F		I-15	283596	256000	F	
	900 West	12865	25200	D		Total	-	757139	715200	-
	I-15	275006	247000	F		8400 West	29474	29500	D	
Total	-	873452	851300	-		6000 West	1635	1600	B	
E2	Hwy 111	33862	33800	F	E4	MVC	164883	151500	F	
	6400 West	16156	16200	F		New Bingham	27956	27800	D	
	MVC	172720	157800	F		5600 West	22412	22400	D	
	5600 West	24552	30400	D		4800 West	23738	23800	F	
	4800 West	16174	10800	D		4000 West	12986	13000	D	
	4000 West	16044	16000	F		Bangerter	71730	61000	F	
	Bangerter	68222	68200	F		3200 West	6309	17400	F	
	3600 West	8065	8000	C		2700 West	12930	17700	F	
	3200 West	14696	14700	E		2200 West	21362	21400	F	
	2700 West	26716	26700	D		Redwood	46645	49700	F	
	I-215	182854	167100	F		1300 West	20913	13500	D	
	2200 West	4961	5000	C		700 West	17327	10600	D	
	Redwood	59011	74500	F		I-15	304509	274000	F	
	500 West	15741	15700	F		Total	-	784809	734900	-
	I-15	228134	201800	F		E5	MVC	88953	80000	C
Total	-	887908	846700	-		4000 West	1795	1800	B	
	3600 West	12074	6200	C		3600 West	12074	6200	C	
	2700 West	7947	7000	C		2700 West	7947	7000	C	
	Redwood	45788	31500	E		Redwood	45788	31500	E	
	1300 West	4127	4100	C		1300 West	4127	4100	C	
	700 West	1725	1700	B		700 West	1725	1700	B	
	500 West	1139	1100	B		500 West	1139	1100	B	
	I-15	248558	229000	F		I-15	248558	229000	F	
	Total	-	412106	362400	-	Total	-	412106	362400	-

Summary:

35 of 67 locations are over capacity

**Table 8-5. Alternative 4 Screenlines Volumes and LOS—North-South Facilities**

Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	
N1	z	116291	99060	D	N3	SR 201	251699	206925	E	
	Parkway B	15581	11996	D		Parkway B	13356	20809	C	
	3100 South	14005	14032	D		3100 South	45580	68940	F	
	3500 South	51930	47219	D		3500 South	70990	70971	F	
	4100 South	36476	31784	E		4100 South	37841	39958	F	
	4700 South	28710	25767	C		4700 South	59108	57669	F	
	5400 South	24572	49417	F		5400 South	58307	73008	F	
	6200 South	33273	33317	C		6200 South	47642	39690	C	
	6600 South	3538	3564	C		7000 South	37498	37514	D	
	7000 South	2566	2549	C		7800 South	32914	34241	F	
	7800 South	38750	35672	F		9000 South	115838	131120	F	
	8200 South	1372	1357	C		9800 South	35134	28940	D	
	8600 South	102	872	C		10400 South	25942	29039	D	
	New Bingham	24021	34379	F		11400 South	19023	18979	C	
	9000 South	93394	93225	D		11800 South	1919	1927	C	
	9800 South	3613	3581	C		12600 South	19253	15046	C	
	Old Bingham	3276	3263	C		13400 South	7680	7725	C	
	10200 South	32716	32748	C		Bangerter	46972	45036	B	
	MVC	105590	97490	D		14400 South	9706	14931	E	
	11400 South	30130	30116	C		MVC Arterial	12183	12142	E	
	11800 South	21711	21416	D		MVC	92820	92901	D	
	12600 South	30050	32080	D		Total	-	1041405	1047511	-
	13400 South	7148	7123	D		SR 201	216643	199880	E	
Total	-	718815	712027	-		3300 South	52838	65565	F	
N2	SR 201	217362	200047	E		Meadow Br	30758	30812	D	
	Parkway B	4481	4477	C		Taylors	48316	48307	D	
	3100 South	11023	11055	C		Murray Ta	11587	11554	E	
	3500 South	43275	52361	F		5400 South	29628	43417	D	
	4100 South	32123	32107	E		I-215	159676	146395	E	
	4700 South	35708	35660	F		Winchester	13682	13740	F	
	5400 South	31631	31591	C		7000 South	42719	30363	C	
	6200 South	40844	38077	C		7800 South	41776	41741	F	
	7800 South	28173	33297	F		9000 South	115838	131120	F	
	New Bingham	18185	18164	C		9800 South	33350	33452	F	
	9000 South	93394	93225	D		10600 South	40642	40643	D	
	Old Bingham	4622	4630	C		11400 South	33628	33583	D	
	10200 South	25916	25899	C		12300 South	27589	34330	E	
	11400 South	26842	26903	C		Bangerter	83819	82575	D	
	11800 South	9118	9113	D		14600 South	4978	1861	C	
	12600 South	42400	42385	F		Total	-	987467	989338	-
Total	-	817610	811548	-						

Summary:
29 of 80 locations are over capacity

**Table 8-6. Alternative 4 Screenlines Volumes and LOS—East-West Facilities**

Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	
E1	9200 West	33776	33787	C	E3	Hwy 111	34726	34902	C	
	8400 West	27644	27643	D		MVC	143971	132032	F	
	8000 West	8800	8800	D		6000 West	11666	11521	E	
	7200 West	26107	26068	D		5600 West	20460	20452	C	
	MVC	138473	127554	F		4800 West	14189	14190	D	
	5600 West	14736	14717	C		Bangerter	79489	79496	F	
	4800 West	28282	28364	D		3200 West	11548	14536	F	
	Bangerter	30198	33746	C		2700 West	18674	12092	D	
	3600 West	6044	9661	D		2200 West	4880	11691	E	
	3200 West	20819	17939	D		Redwood	68514	62526	F	
	2700 West	326	2761	C		1300 West	15822	14212	F	
	I-215	206064	174244	F		700 West	15434	15509	F	
	Redwood	47558	57222	F		I-15	251928	227393	F	
	900 West	11375	22243	E		Total	-	691301	650552	-
	I-15	239471	215128	F		8400 West	31886	31959	C	
	Total	-	839673	799877	-	6000 West	5498	5411	D	
E2	Hwy 111	43756	43669	D	E4	MVC	136532	125462	F	
	6400 West	15036	15038	E		New Bingham	16164	16088	C	
	MVC	146960	134264	F		5600 West	10080	10055	C	
	5600 West	25116	31115	E		4800 West	18263	18321	F	
	4800 West	15390	10319	D		4000 West	14599	14656	F	
	4000 West	15001	14994	F		Bangerter	65723	55883	F	
	Bangerter	61085	61080	F		3200 West	22273	61543	F	
	3600 West	6393	6307	D		2700 West	14625	20019	F	
	3200 West	10940	10954	E		2200 West	6289	6292	D	
	2700 West	26113	26073	D		Redwood	51468	54807	F	
	I-215	139735	127681	D		1300 West	8691	5598	D	
	2200 West	7735	7686	D		700 West	17619	10745	E	
	Redwood	47856	60416	F		I-15	267640	240880	F	
	500 West	14488	14534	F		Total	-	687350	677719	-
	I-15	230959	204296	F		E5	MVC	88385	79525	C
	Total	-	806563	768426	-	4000 West	1795	1800	C	
					3600 West	14719	7574	D		
					2700 West	3690	3237	C		
					Redwood	43952	30233	C		
					1300 West	2376	2366	C		
					700 West	12277	12335	E		
					500 West	424	424	C		
					I-15	206880	190558	E		
					Total	-	374498	328052	-	

Summary:

34 of 67 locations are over capacity

**Table 8-7. Alternative 5 Screenlines Volumes and LOS—North-South Facilities**

Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS
N1	SR 201	119596	101875	D	N3	SR 201	127778	105048	C
	Parkway B	14377	11069	D		Parkway B	13500	21033	C
	3100 South	14703	14731	E		3100 South	43690	66081	F
	3500 South	47222	42938	D		3500 South	69168	69149	F
	4100 South	37055	32289	D		4100 South	52462	55396	F
	4700 South	26396	23691	C		4700 South	59529	58080	F
	5400 South	18376	36956	D		5400 South	55395	69362	F
	6200 South	30786	30827	C		6200 South	39259	32706	C
	6600 South	7249	7303	D		7000 South	30117	30130	D
	7000 South	1997	1984	C		7800 South	21682	22556	D
	7800 South	31419	28923	D		9000 South	179794	203513	F
	8200 South	3334	3297	C		9800 South	15783	13000	C
	8600 South	285	2436	C		10400 South	17698	19811	C
	New Bingham	8668	12406	C		11400 South	16674	16635	C
	9000 South	31444	31387	C		11800 South	1206	1211	C
	9800 South	5550	5501	D		12600 South	28230	22062	C
	Old Bingham	63767	63522	C		13400 South	6640	6679	C
	10200 South	27727	27754	C		Bangerter	54608	52357	B
	MVC	84173	77716	C		14400 South	9246	14223	D
	11400 South	26168	26156	C		MVC Arterial	11213	11176	E
	11800 South	18720	18466	C		MVC	91428	91508	D
	12600 South	32425	34615	F		Total	-	945100	981716
	13400 South	7127	7102	D	N4	SR 201	214637	198029	E
	Total	-	658564	642944	-	3300 South	39979	49609	E
N2	SR 201	205088	188750	E	Meadow Br	98002	98175	F	
	Parkway B	4512	4508	C	Taylors	34395	34388	C	
	3100 South	12853	12890	C	Murray Ta	9689	9662	D	
	3500 South	42139	50987	E	5400 South	27732	40639	D	
	4100 South	35599	35581	F	I-215	146526	134339	D	
	4700 South	34455	34409	E	Winchester	13054	13109	F	
	5400 South	32646	32605	C	7000 South	33553	23848	D	
	6200 South	36809	34315	C	7800 South	33016	32988	F	
	7800 South	28670	33884	F	9000 South	162033	190330	F	
	New Bingham	10812	10800	C	9800 South	22256	22324	D	
	9000 South	51787	54934	F	10600 South	34420	34421	D	
	Old Bingham	82530	82677	D	11400 South	31356	31314	C	
	10200 South	18226	18214	C	12300 South	26931	33511	E	
	11400 South	29488	29556	C	Bangerter	85015	83753	D	
	11800 South	10202	10196	E	14600 South	4890	1828	C	
	12600 South	43811	43796	F	Total	-	1017484	1032267	-
	13400 South	22465	22455	A					
	14400 South	8100	8087	C					
	MVC	91428	91508	D					
	Total	-	801620	800152	-				

Summary:

24 of 80 locations are over capacity

**Table 8-8. Alternative 5 Screenlines Volumes and LOS—East-West Facilities**

Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	
E1	9200 West	32205	32215	C	E3	Hwy 111	28173	28316	C	
	8400 West	27728	27727	D		MVC	114325	104845	D	
	8000 West	8800	8800	D		6000 West	8641	8533	D	
	7200 West	25879	25840	D		5600 West	18437	18430	C	
	MVC	116615	107420	E		4800 West	13515	13516	D	
	5600 West	12777	12760	C		Bangerter	169140	169155	F	
	4800 West	27230	27309	D		3200 West	13412	16883	F	
	Bangerter	102461	114501	E		2700 West	18603	12046	D	
	3600 West	4953	7917	D		2200 West	3722	8917	D	
	3200 West	20547	17704	D		Redwood	60590	55294	F	
	2700 West	157	1330	C		1300 West	14644	13154	F	
	I-215	188278	159205	E		700 West	15339	15413	F	
	Redwood	45316	54525	F		I-15	241893	218335	F	
	900 West	10994	21498	D		Total	-	720434	682837	-
	I-15	235183	211275	F		8400 West	21274	21323	C	
Total	-	859123	830026	-		6000 West	1991	1960	C	
E2	Hwy 111	36832	36759	C	E4	MVC	111097	102089	D	
						New Bingham	10829	10778	C	
	6400 West	13147	13149	D		5600 West	19911	19862	C	
	MVC	115571	105587	D		4800 West	26429	26513	F	
	5600 West	23551	29177	D		4000 West	16061	16124	F	
	4800 West	16473	11045	D		Bangerter	171629	145934	F	
	4000 West	17641	17633	F		3200 West	5830	16109	F	
	Bangerter	140362	140350	F		2700 West	14761	20205	F	
	3600 West	9628	9498	D		2200 West	11837	11842	E	
	3200 West	11854	11869	E		Redwood	60932	64885	F	
	2700 West	26593	26552	D		1300 West	17142	11041	E	
	I-215	118806	108557	C		700 West	18752	11436	E	
	2200 West	8171	8119	D		I-15	256109	230502	F	
	Redwood	45242	57116	F		Total	-	764584	710603	-
	500 West	14651	14698	F		MVC	86298	77647	C	
	I-15	224973	199001	F		4000 West	1795	1800	C	
Total	-	823495	789110	-		3600 West	17979	9252	D	
E5						2700 West	4227	3708	C	
						Redwood	42279	29083	C	
						1300 West	2193	2184	C	
						700 West	5522	5548	D	
						500 West	3449	3446	C	
						I-15	212714	195931	E	
						Total	-	376456	328599	-

Summary:

28 of 67 locations are over capacity



8.3.1.3 Corridors Travel Time

Another performance measure used in the evaluation of the alternative is the travel time comparison along specific corridors within the study area. Table 8-9 depicts the corridors analyzed and the resulting travel times by corridor by alternative. Alternatives 4 and 5 improve the overall travel time on each corridor compared to the 2030 Beyond scenario. Marked improvements in travel time are noted between 2030 Beyond and Alternative 5 with respect to corridors comprising freeways and higher-level facilities. Figure 8-5 shows the results graphically.

Table 8-9. Corridors Travel Time Comparison

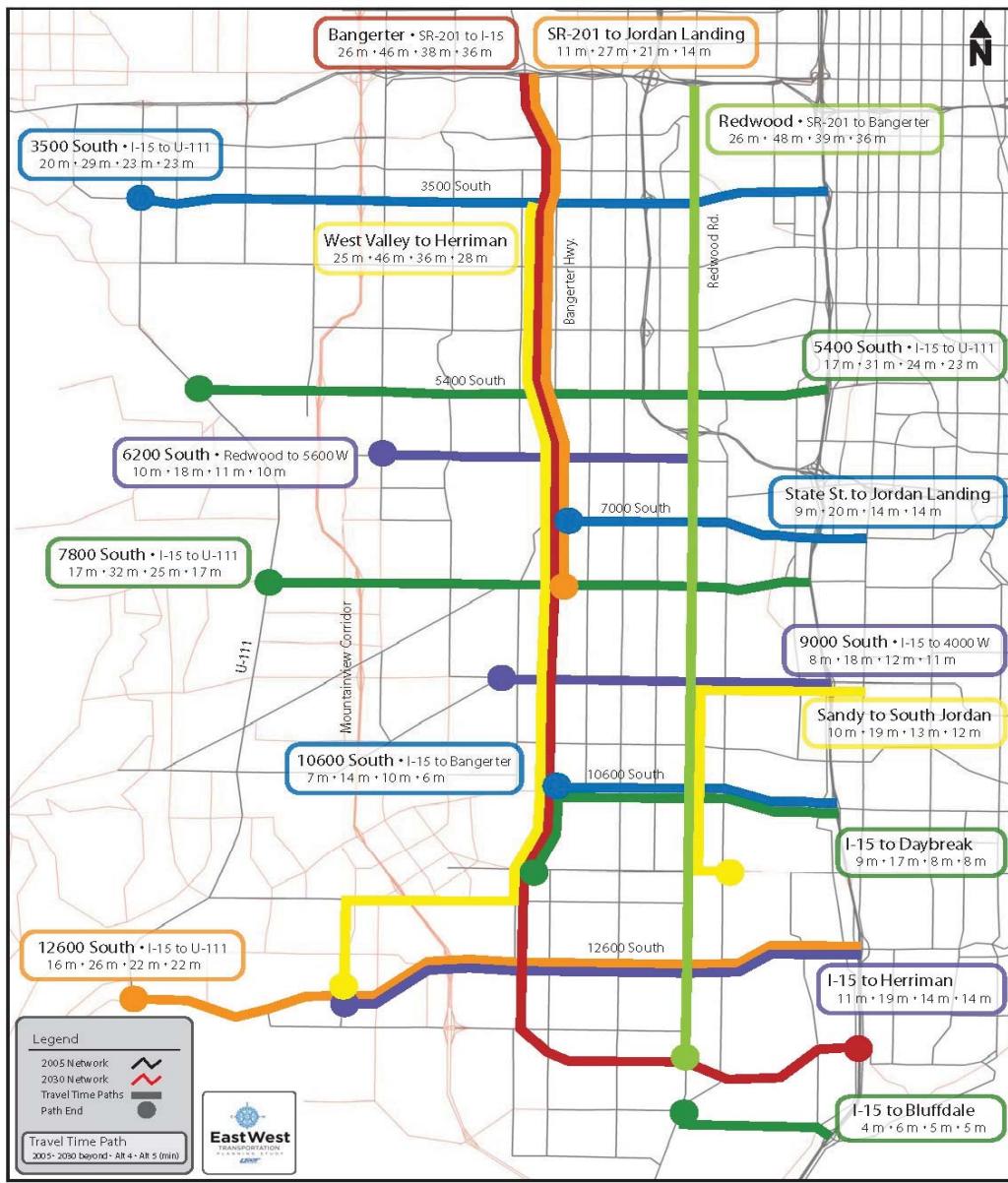
Route No.	Route Name	From	To	Description	2030 Beyond Travel Time (minutes)		Alternative 4 (minutes)		Alternative 5 (minutes)		Alternative 6 Suggested System Alternative (minutes)		
					(minutes)	(minutes)	(minutes)	(minutes)	(minutes)	(minutes)	(minutes)	(minutes)	
1	3500 South	U-111	I-15		28.94	23.36	23.05	22.04					
2	5400 South	U-111	I-15		30.98	23.61	23.27	22.75					
3	6200 South	5600 West	Redwood Rd		17.75	10.81	10.08	11.26					
4	7800 South	U-111	I-15		31.57	24.43	17.25	23.85					
5	10600 South	Bangerter Hwy	I-15		14.23	9.71	5.92	9.10					
6	12600 South	U-111	I-15		23.68	21.79	21.92	21.43					
7	Bangerter Hwy	I-15	SR-201		45.41	38.21	35.87	25.57					
8	Redwood Rd	Bangerter Hwy	SR-201		47.53	39.26	35.98	36.69					
9	Jordan Landing		SR-201	NB Bangerter from 7800 South	26.61	20.44	13.69	12.00					
10	Jordan Landing	State St		EB 7000/7200 South	20.23	14.10	13.89	14.11					
11	Sandy	South Jordan		WB 9000 South (State St to Redwood Rd) SB Redwood Rd (9000 South to 10800 South)	19.28	12.51	12.04	13.48					
12	Herriman	I-15		EB 12600 South (6000 West to I-15)	19.08	14.09	13.53	13.25					
13	Herriman	West Valley City		EB 13400 South (6000 West to Bangerter Hwy) NB Bangerter Hwy (13400 South to 3500 South)	45.70	35.53	27.47	25.81					
14	Bluffdale	I-15			5.51	4.53	4.58	4.69					
15	Day Break	I-15		EB 14400/14600 South (Redwood to I-15) NB Bangerter (14400/14600 South to 10400/10600 South) EB 10400/10600 South (Bangerter Hwy to I-15)	16.58	7.63	7.96	11.01	(This route was modified to follow the LRP alignment)				
16	9000 South	4000 West	I-15		17.98	12.00	11.05	5.51	(This is the mainline travel time, not the frontage road)				
Note:	Travel times are based on WFRCS model output travel time for the specific horizon year												
	Future roadway networks contain the WFRCS Long Range Plan roadway improvements												



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Figure 8-5. Travel Times by Corridor by Alternative



Travel times are taken from the WFRCC model outputs for the specific horizon year and alternative. Future roadway networks contain the WFRCC Long Range Plan improvements.



8.3.1.4 VMT and VHT

The last measure of effectiveness used in the evaluation was the overall VMT and VHT by facility type by alternative. The VMT remained in the 21,000,000 range for both alternatives; however, the VHT decreased in both alternatives, with Alternative 5 showing the largest decrease. A decrease in VHT means that a vehicle spends less time on the roadway system. It may travel the same distance, but in a shorter amount of time. This is also reflected in the average system speed within the study area, which increased from 39.31 mph in the 2030 Beyond scenario to 46.25 mph in Alternative 5.

Table 8-10. VMT and VHT Summary by Alternative

2030 Beyond			
	VMT	VHT	Avg Speed
Freeways	12,495,196	264,968	47.16
Highways	1,014,219	28,481	35.61
Principal Arterial	2,548,138	86,017	29.62
Minor Arterial	3,477,740	130,631	26.62
Collectors	1,558,938	67,929	22.95
Study Area Total	21,094,231	578,026	39.31
Alternative 4			
	VMT	VHT	Avg Speed
Freeways	12,336,003	244,375	50.48
Highways	906,630	24,683	36.73
Principal Arterial	2,558,391	77,067	33.20
Minor Arterial	3,550,771	118,170	30.05
Collectors	1,572,681	67,571	23.27
Study Area Total	20,924,476	531,866	41.92
Alternative 5			
	VMT	VHT	Avg Speed
Freeways	14,582,007	272,541	53.50
Highways	6,625	145	45.84
Principal Arterial	2,524,839	75,357	33.51
Minor Arterial	2,689,372	89,489	30.05
Collectors	1,235,899	51,611	23.95
Study Area Total	21,038,742	489,143	46.25



8.3.2 Summary of Systems Alternatives Evaluation

The analyses presented above clearly indicate that, technically, Alternative 5 would better address future travel demand by providing more congestion relief.

8.3.3 Corridor Improvements Costing

A cost evaluation was also performed for each alternative. For each proposed improvement, many factors were used in calculating individual costs. After different improvements were identified, a unit cost was needed for each. The following table is a list of improvement types with their associated capital base cost per unit:

Table 8-11. Improvement Capital Base Costs (2008 Dollars)

Improvement Type	Unit	Cost/Unit
Reversible Lanes	mile	\$4,000,000
Arterial widening	per lane per mile	\$10,200,000
Freeway widening	per lane per mile	\$12,400,000
New Freeway	per lane per mile	\$13,100,000
Arterial to Freeway	per lane per mile	\$16,400,000
Arterial to Expressway	per lane per mile	\$22,800,000
Overpass	each	\$7,200,000
SPUI without ROW Constraints	each	\$48,300,000
SPUI with ROW Constraints	each	\$96,300,000
System to System Interchange	each	\$225,000,000
Bus Rapid Transit Shared Bus Lane	mile	\$1,400,000
Bus Rapid Transit Dedicated Bus Lane	mile	\$9,600,000
Light Rail Transit	mile	\$56,800,000

The base cost for each improvement type was calculated by averaging several sources. The roadway sources included base costs used for the recent UDOT projects. All of the UDOT projects used as sources began construction within the past five years. Sources for other transportation improvement types were the base costs used in the *Wasatch Front Regional Transportation Plan: 2007-2030 (2030 RTP)*, existing UTA projects, and figures given in the TCRP Report 90 (2003) published by the Transportation Research Board.

Each previous project and its unit costs were grouped with similar improvement types. Each group was averaged and used as the base cost per unit. All dollar figures were adjusted to 2008 dollars using a 4 percent annual increase.

These base costs per unit were used to calculate the capital cost total for each improvement. Capital costs included construction, utility, design engineering, and construction engineering.



Because of the large scope of estimating, costs associated with right-of-way acquisition were calculated as a percentage of capital. Based on past project experience, 10 percent of the capital cost was used as the base. The sum of these two represents the overall total cost for each proposed improvement. For a breakdown of how the cost for each improvement was estimated, see Appendix C.

8.3.4 Process Used to Identify the Recommended Alternative

A Stakeholder Working Group (SWG) meeting was held on April 17, 2008, to discuss Alternatives 4 and 5. These alternatives were refined from previous alternatives in the process to identify solutions to improve mobility in the southwest quadrant of the Salt Lake Valley. During the meeting, the participants separated into two groups to discuss the concepts included in the alternatives (one for the northern area and one for the southern area of the project limits). The work groups discussed and received feedback from the stakeholders regarding the concepts presented in the alternatives and identified potential concerns, issues, and opportunities to help the study team refine the two alternatives to one System Alternative. Each group was asked to select one alternative as a basis of conversation and modification that the group thought had the most attractive solutions.

Table 8-12 has the comments received from the northern area group (which chose Alternative 4 as a base) during and after the meeting.

Table 8-13 has the comments received from the southern area group (which chose Alternative 5 as a base) during and after the meeting.

8.4 SUGGESTED SYSTEM ALTERNATIVE

Based on the technical analysis and input and comments from the SWG, the final Suggested System Alternative was formulated. It is displayed in Figure 8-6. The Suggested System Alternative is predominately reflective of Alternative 5. It has both roadway and transit improvements, with an emphasis on higher-level roadway facilities widening. Proposed transit improvements favor Bus Rapid Transit (BRT) and light rail transit extension or new service corridors.

The Suggested System Alternative and the evaluation results were presented to the SWG for final comments.

**Table 8-12. Northern Area Group Comments**¹Red dot implies uncertainty or concern requiring further study²Green dot implies a priority³Highlighted areas require clarification

Comments received at the SWG meeting

No.	City Agency	Green Dot ¹	Red Dot ²	Comments	Project Team Response
1	West Valley City		3100 South—N3b	More study on reversible or unbalanced lanes.	Comment Noted
2	West Valley City		SR 201—N1	Impact on frontage roads from SR-201 Expansion.	Comment Noted
3	West Valley City	Bangerter Highway—A1c		Interchanges at Bangerter.	Comment Noted
4	West Valley City	I-215—N2		4100 South between I-15 and I-215 including I-215 interchange.	Comment Noted
5	West Valley City	4100 South—N3d		BRT at 5400 South to Kennecott	Comment Noted
6	West Valley City	BRT/5400 South—N6a (Alternative 5)		BRT on 3500 South	Comment Noted
7	West Valley City	BRT/3500 South—N4		6200 South between 5600 West and U-111.	Comment assumed to apply to roadway, not BRT
8	West Valley City	6200 South—N7a		U-111 needs to be made into an expressway.	Comment Noted
9	Salt Lake County	Magna Bypass/U-111—A2b		3500 South upgrades would alleviate the current choke point issue that exists from 5600 West to U-111.	Comment Noted
9	Salt Lake County	BRT/3500 South—N4		Putting BRT on 5400 South would be consistent with UTA plan.	Comment Noted
10	Salt Lake County	BRT/5400 South—N6a		Upgrading 3100 South before 3500 would reduce traffic issues when 3500 is expanded to Magna.	Comment Noted
11	Salt Lake County	3100 South—I-3b		Concern is that taking U-111 into Magna to 7500 doesn't solve traffic issues. Moving the road west from 4700 South to the Magna Bypass. (per Kennecott) would create a solution.	Comment Noted
12	Salt Lake County		Magna Bypass/U-111—A2b		
13	UTA		3100 South—N3b		
14	UTA		4100 South—N3d		
15	UTA		Bangerter Highway—A1c		
16	UTA		Magna Bypass/U-111—A2b		
17	UTA	Transit Corridor/5600 West—A4			
18	UTA	BRT/6200 South—N6a/N7a?			
19	UTA	BRT/3500 South—N4			
20	WFRC		Magna Bypass/U-111—A2b		
21	WFRC		Sta?		
22	WFRC	13400 South—S4			
23	WFRC	Bangerter Highway—A1c			
24	WFRC	Magna Bypass/U-111—A2b			
25	WFRC	I-215—N2			
26	WFRC	9000 South—C1a			
27	WFRC	BRT/6200 South—N6a/N7a?			
28	Magna, Kearns, Copperton			General comment: 1—Use Alt. #4, think transit and connectivity as the alternatives are refined. 2—Keep the broad picture in mind (trails, pedestrians, bikes, etc.). 3—Alt #5 focuses too much on road construction. We have to be creative with multi-modal thinking. We know what happens when we simply build a road.	Comment Noted
29	Magna, Kearns,			Truly bypass Magna with expressway farther south than 35th. (maybe 41st or maintain northwest movement of U-111) Re-think BRT and LRT on 5400 South. Residual imports are too great.	Comment Noted

**Table 8-12. Northern Area Group Comments**¹Red dot implies uncertainty or concern requiring further study²Green dot implies a priority³Highlighted areas require clarification

Comments received at the SWG meeting

No.	City/Agency	Green Dot ¹	Red Dot ²	Comments	Project Team Response
Comments received after the April 17th Meeting					
1	Riverton City			Alternative S4 should be removed because the subject widening on 13400 S. Street will have been accomplished prior to 2030.	The Long Range Plan (LRP) Financial plan indicates that 13400 S. will widen from 2+4 lanes between MVC and Bangertier. The LRP does not identify this widening between Bangertier and Redwood. For the purposes of our study, we will remove the blue line between MVC and Bangertier on "S4" (3400 S) roadway. We will leave in the "S4" improvement portion from Bangertier to Redwood, because the 2030 LRP did not identify it. It is great to know Riverton is making it happen prior to 2030. By keeping this improvement in our study, it assures the model network includes this capacity in its analysis, where otherwise it had not been included previously. We concur with the observation and will make this change.
2	Riverton City	Transit Corridor/5600 West—A4		Realign A4 at 11400 S. to remain close to MVC to better serve Riverton and Herriman with transit infrastructure.	
3	Taylorville City	4100 South—N3d		Not in favor of 4100 South for this option. 4500 South should serve peak direction flow from U-111 to Redwood Road.	Comment Noted
4	Taylorville City	BRT/6200 South—N6b		We are not in favor of BRT on 6200. It should be 5400 South. We would like to see initially a half-diamond interchange at 5400 south and I-215 with a full interchange planned later.	Comment Noted
5	Taylorville City	I-215—N8		Widening SR-201 to 10 lanes will eliminate the existing frontage roads and have a significant impact on the trucking industry which is vital to West Valley City	Comment Noted
6	West Valley City	SR 201—N1		Upgrade to provide frontage roads/Texas U-turns from SR-201 to Redwood Rd. Needs further study but should remain an alternative	Comment Noted
7	West Valley City	I-215—N2		Based on current data and recommended practice for unbalanced/reversible lanes, neither 3100 South—N3b nor 4100 South—N3d are good candidates for this proposal. The directional split in peak traffic	Comment Noted
8	West Valley City	3100 South—N3b			
9	West Valley City	4100 South—N3d			

**Table 8-12. Northern Area Group Comments**¹Red dot implies uncertainty or concern requiring further study²Green dot implies a priority³Highlighted areas require clarification

Comments received at the SWG meeting

No.	City Agency	Green Dot ¹	Red Dot ²	Comments	Project Team Response
10	West Valley City	Bangerter Highway—A1c		volumes does not justify this. Further study is needed.	Comment Noted
11	West Valley City		BRT/Redwood Road—A3	Short term: at grade high capacity intersection improvements. Long term: grade separated interchanges.	Comment Noted
12	Kenncott Land Company	Bangerter Highway—A1c		Add BRT from SR-201 to 14400 South. Dedicated BRT lanes would have significant ROW impacts to businesses along Redwood Rd in WVC. Recommend transit priority at signals, non-dedicated lanes.	Comment Noted
13	Kenncott Land Company	BRT/10200 South—C6		Good as is.	Comment Noted
14	Kenncott Land Company	Light Rail Line/Mid-Jordan Line—S1c		10400 South alignment appears to be incorrect. Proposed MVC interchanges are on 10400 South along the alignment indicated in the previous bullet point. There is also a proposed future interchange at Old Bingham/ 10200 South.	Comment Noted
15	Kenncott Land Company	Light Rail Line/Herriman—S2a		Good as is.	Comment Noted
16	Kenncott Land Company	BRT/12600 South—S7a		Extend to U-111 along 12600 South alignment.	Comment Noted



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**Table 8-13. Southern Area Group Comments**

Red dot implies uncertainty or concern requiring further study

Green dot implies a priority

*Highlighted areas require clarification

No.	City/Agency	Green Dot ¹	Red Dot ²	Comments	Project Team Response
1	South Jordan	Bangerter Highway—A1a	9800 S.—C5	Not necessary, especially if it doesn't connect with Bangerter. Highest Priority	Comment Noted Comment Noted
2	South Jordan		4100 S.—N11a		
3	Taylorsville	I-215—N8			
4	Taylorsville	6200 S.—N7a			
5	Taylorsville	BRT/5400 S.—N6a			
6	Taylorsville	4700 S.			
7	Taylorsville	Bangerter Highway—A1a			
8	Taylorsville	I-215—N2			
9	Taylorsville		13400 S.—S3	Building MVC—don't need freeway connection.	Comment Noted
10	Riverton City		13400 S.—S4	We will have built in the next 3 years: 1. 13400 South going west to Bangerter with 7 lanes; 2. 13400 South from 2700 West to Bangerter is now 5 lanes; 3. 13400 South from Redwood Road to 2700 West is 3 lanes. Enough.	Comment Noted Comment Noted
11	Riverton City			Keep Trax line by the MVC past 11800 S.	Comment Noted
12	Riverton City	Bangerter Highway—A1a		New Interchange at Bangerter is critical for Riverton.	Comment Noted
13	Riverton City	Light Rail Line/Mid Jordan Line—S1b		Extend light rail to 13400 South to better serve Riverton and Herriman.	Comment Noted
14	Riverton City			Concerns regarding 7000 S. and 7800 S. traffic at Bangerter.	Comment Noted
15	City of West Jordan		7000/7800 S. C2c	6200 S. needs to be tied into I-215	Comment Noted
16	City of West Jordan		6200 S.	Interchange/partial interchange needed at 7800 S. on I-15—SB off—NB on.	Comment Noted
17	City of West Jordan		7800 S.	Interchanges on Bangerter Highway.	Comment Noted
18	City of West Jordan	Bangerter Highway—A1a		"C1A" was written over C1b on the map; assume comment implies support for an elevated structure in this location.	
19	City of West Jordan	9000 S./Old Bingham Hwy.—C1b			
20	City of West Jordan	6200 S.—N7a		MVC Now!	Comment Noted
21	City of West Jordan	MVC		Now	Comment Noted
22	City of West Jordan	I-215—N8		Only need 1 transit connection to Bluffdale—preferably light rail alignment is not along the MVC.	Comment Noted
23	Herriman	BRT/Mountain View Corridor—S2b		Transit to Herriman	Comment Noted
24	Herriman	BRT/14400 S.—S7b		Transit from Herriman to the station at 14600 S. in Bluffdale.	Comment Noted
25	Herriman	BRT/Mountain View Corridor—S2b		6200 S. (N7a) is currently a problem area. The sooner we can affect change the better.	Comment Noted
26	Salt Lake County	6200 S.—N7a		Existing development does exist currently past 5600 W. BRT will benefit now.	Comment Noted
27	Salt Lake County	BRT/3500 S.—N4		Concern SFR-111 will drop on the priority list because of Kemnecott announcement. It is still a priority.	Comment Noted
28	Salt Lake County		Magna Bypass/I-111—A2b	4100 S. separates the city when as an expressway.	Comment Noted
29	Salt Lake County	11400 S.—N11a			
30	Draper	C8			
31	Draper	BRT/14400 S.—S7b			

**Table 8-13. Southern Area Group Comments**¹Red dot implies uncertainty or concern requiring further study²Green dot implies a priority

*highlighted areas require clarification

Comments received at the SWG meeting

No.	City/Agency	Green Dot ¹	Red Dot ²	Comments	Project Team Response	
32	Sandy	9000 S./Old Bingham Hwy.—C1b		Better East/West commute on limited access	Comment Noted	
33	Sandy	9800 S.—C5		Increased traffic expected on 9800 South/10000 South as Sandy's Center develops (mixed use projects near City Hall)	Comment Noted	
34	Sandy	Bangerter Highway—A1a	Transit Corridor/ 5600 West—A4	Grade separation on Bangerter as far as possible will ease congestion at intersections.	Comment Noted	
35	Bluffdale	Redwood Road—S6		Concerned how to connect A4 to S2a or S2b	Comment Noted	
36	Bluffdale	BRT/Mountain View Corridor—S2b		Widen Redwood Road	Comment Noted	
37	Bluffdale		Connect A4 to S2b or S2a	Comment Noted	Comment Noted	
38	Midvale		Move 7800 S. and 7000 S. connectors to Birmingham Junction Blvd.	Comment Noted	Comment Noted	
39	Midvale	9000 S./Old Bingham Hwy.—C1b	7000/7800 S. C2c	Poor East/West flow in this area (9000 S.)	Comment Noted	Comment Noted
40	Midvale	7000/7800 S. C2c	10200/10400 S.—C7	Immediate growth currently at failure	Comment Noted	Comment Noted
41	Midvale	10200/10400 S.—C7	BRT/14400 S.—S7b	Immediate need with Daybreak	Comment Noted	Comment Noted
42	Midvale	BRT/14400 S.—S7b	4100 S.—N11a	S7b Enhance to handle additional flow from Daybreak.	Comment Noted	Comment Noted
43	Magna, Kearns, Copperton			Interchange with I-15 may make spacing on I-15 an issue.	Comment Noted	
Comments received after the April 17th Meeting						
No.	City/ Agency	Green Dot ¹	Red Dot ²	Comments	Project Team Response	
1	Riverton City		13400 S.—S4	Alternative S4 should be removed because the subject widening on 13400 S. Street will have been accomplished prior to 2030.	For the purposes of our study, we will remove the blue line between MVC and Bangerter on "S4" (13400 S) roadway. A freeway "Connector" and the above mentioned 13400 S. widening is included in the 2030 LRP Financial Plan. We will assure the model network provides for these movements and remove "S3" from the maps as it is considered included in the 2030 LRP.	
2	Riverton City		13400 S.—S3	Alternative S3 should be removed between the Mountain View Corridor and the Bangerter Highway. Highway is and will remain a Riverton City Street and Riverton will determine access.	Comment Noted	
4	Taylorsville City	BRT/5400 S.—N6a		We are in favor of BRT on 5400 South and would like to see a tie into the regional system at I-15 and 5400 S.	Comment Noted	
5	Taylorsville City	6200 S.—N7a		We are in favor	Comment Noted	
6	Taylorsville City	I-215—N8		We are in favor of a half-diamond interchange for current plan and a full interchange in the future	Comment Noted	
7	Taylorsville City	4100 S.—N11a		We would like this option at 4100 S. in place of 4100 S..	Comment Noted	
8	Taylorsville City	Bangerter Highway—A1a		Interested in grade separated interchanges or improvements to Bangerter and 35 th , 41 st , 47 th , 54 th , 62 nd and 78 th Intersections. Please coordinate work on these interchanges with the corresponding interchanges on Redwood Road.	Comment Noted	
9	West Valley City	4100 S.—N11a		Convert to a freeway from I-15 to I-215 and expressway from I-215 to MVC (interchanges at I-215 and Bangerter). An interchange at 4100 S/I-215 needs to be pursued in the short term. The freeway section could be at 4100 S or 4700 S. The expressway from I-215 to MVC and a grade separated interchange at Bangerter should be a longer term priority.	Comment Noted	
10	Kennecott Land	Magna Bypass/ U-111—A2b		Straighten I-111 alignment along 7200 West alignment from approximately 10200 S. to 13400	Comment Noted	

**Table 8-13. Southern Area Group Comments**¹Red dot implies uncertainty or concern requiring further study²Green dot implies a priority

*highlighted areas require clarification

No.	City/Agency	Comments received at the SWG meeting	Green Dot ¹	Red Dot ²	Comments	Project Team Response
11	Kenecott Land Company	Transit Corridor/ 5600 West—A4		S..	Good as is.	Comment Noted
12	Kenecott Land Company	9000 S./ Old Bingham Hwy—C1b			Add interchange at intersection of Old Bingham and MVC.	Comment Noted
13	Kenecott Land Company	Light Rail/ Mid- Jordan Line—C4			Please include C4 (shown in previous alternatives) into Alternatives 4 and 5.	Comment Noted
14	Kenecott Land Company	10200/ 10400 S.—C7			Extend to U-111.	Comment Noted
15	Kenecott Land Company	11400 S.—C8			Extend to U-111.	Comment Noted
16	Kenecott Land Company	SR-201—N1			Extend to Magna Bypass.	Comment Noted
17	Kenecott Land Company	3100/3500 S.—N3b			Extend to Magna Bypass.	Comment Noted
18	Kenecott Land Company	4100 S.—N11a			Extend to Magna Bypass.	Comment Noted
19	Kenecott Land Company	BRT 3500 S.—N4			Good as is.	Comment Noted
20	Kenecott Land Company	BRT 5400 S.—N6a			Good as is.	Comment Noted
21	Kenecott Land Company	6200 S.—N7a			Good as is.	Comment Noted
22	Kenecott Land Company	13400 S.—S4			Good as is.	Comment Noted
23	Kenecott Land Company	BRT/11400 S.—S7b			Good as is. S7b's map alignment does not match the text.	Comment Noted

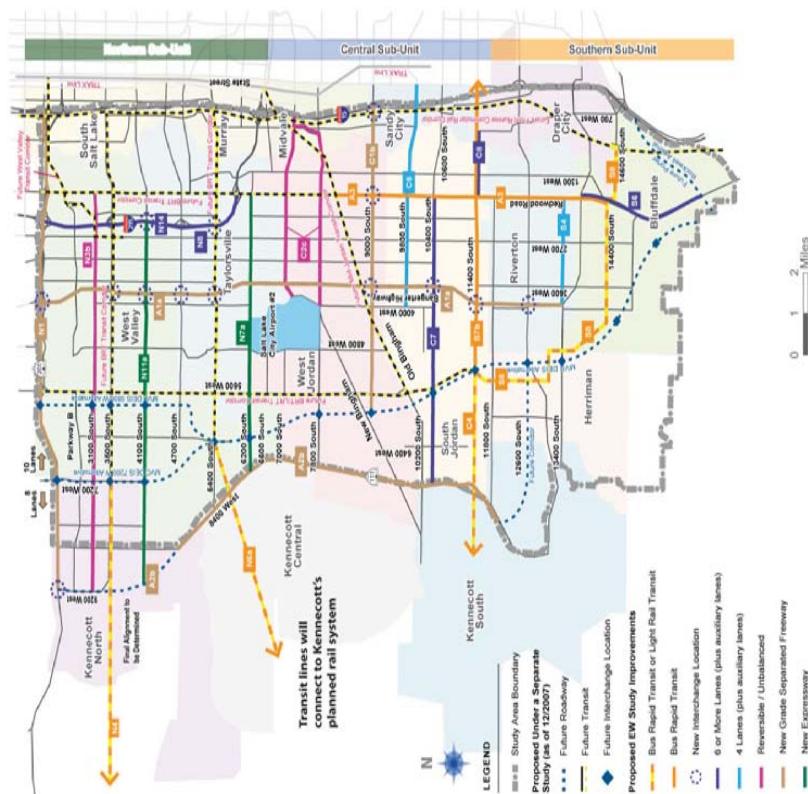


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Figure 8-6. Suggested System Alternative POTENTIAL IMPROVEMENTS

The potential improvements are an addition to the planned improvements included in the Wasatch Front Regional Council's (WFRC) 2030 Regional Transportation Plan (RTP). The map below does not identify all the RTP improvements.



Improvement	Cost in Millions*
N1 SR-201 Widens to 10 lanes from I-15 to Mountain View Corridor (MVC). Widens to 8 lanes from MVC to 7200 West.	\$2.266
N2b 3100 South Provides a reversible lane to serve peak directional flow from SR-111 to Redwood Rd.	\$4.2
N4L BRT/LRT - 3500 South Extend Bus Rapid Transit (BRT) or Light Rail Transit (LRT) service from 7200 West to connect with Kennebott's planned rail system (extending from proposed BRT in the WFRC's RTP).	\$26.5
N4s BRT/LRT - 5400 South Extend BRT/LRT from Mountain View Corridor to Kennebott's planned rail system (extending from proposed BRT in the WFRC's RTP).	\$36
N7a 6200 South To a 6-lane expressway from Redwood Rd. to SR-111.	\$316
N8 Limited to development access, right-of-ways, possible signals at cross streets.	\$106
I-215 Add an interchange at 5400 South.	\$64.25
N11a 4100 South Connect 4100 South to a 6-lane expressway from I-215 to SR-111.	\$365
N14 I-215 Widens to 10 lanes from SR-201 to Redwood Rd.	\$2.190
C1b 9000 South Convert 9000 South to a 6-lane grade-separated freeway with a frontage road system from I-15 to I-215, Bangerter, Redwood, and MVC.	\$37.5
E2c 7000/7800 South Provide a reversible lane to serve peak directional flow from I-15 to just west of Bangerter and connect 7800 South to 7200 South near I-15.	\$181
C4 LRT Mid-Jordan Line West Extension Extend Mid-Jordan Transit line with LRT west from its terminus I-1400 South and 5200 West to Kennebott's planned rail system.	\$121
C5 9800 South Widens to 4 lanes from State Street to 4000 West.	\$157
C7 10400 South Extend 2nd widened facility to 6 lanes from Redwood Rd. to SR-111.	\$51.5
C8 11400 South Widens to 6 lanes from 700 West to Redwood Rd.	\$51.5
S4 13400 South Widens to 4 lanes from Redwood Rd. to Bangerter.	\$51.5
S6 Redwood Rd. Widens to 6 lanes from Bangerter to Porter Rockwell Blvd.	\$51.5
S7b ERT - 11400 South Add ERT from Mid-Jordan line at MVC and connect to proposed extension off North-South TRAX line.	\$3.0
S8 ERT/LRT Mid-Jordan Line South Extension Extend Mid-Jordan transit line with ERT or LRT south from its terminus (11400 South and 5200 West) to Front Runner station at 1400 South.	\$367
A1a Bangerter Hwy. Convert Bangerter to a freeway from 7200 South to SR-201. Implement high capacity intersections along. Continuous flow intersections (CF) like at 3500 South and Bangerter as an interim plan.	\$4.91
A2b 9200 West/SR-111 Convert proposed SR-111 (final alignment to be determined by separate study) on 9200 West to a 6-lane freeway from SR-201 to SR-111 and widen SR-111 to a 6-lane freeway from 3500 South to 17600 South.	\$1.724
A3 ERT - Redwood Rd. Extend ERT from Future Mid-Jordan Transit Corridor to 14000 South.	\$12.5



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8.4.1 Performance of the Suggested System Alternative

Performance measures for the Suggested System Alternative were calculated and compared to the 2030 Beyond scenario. Figure 8-7 depicts the Suggested System Alternative daily forecasted traffic volumes and corresponding LOS. When compared to the 2030 Beyond results, substantial mobility improvements occur on all facilities in the study area. Table 8-14, which summarizes the screenline locations with LOS E or F, substantiates the increased mobility observed in the previous figure. Screenline locations for individual results are displayed in Table 8-15 and Table 8-16.

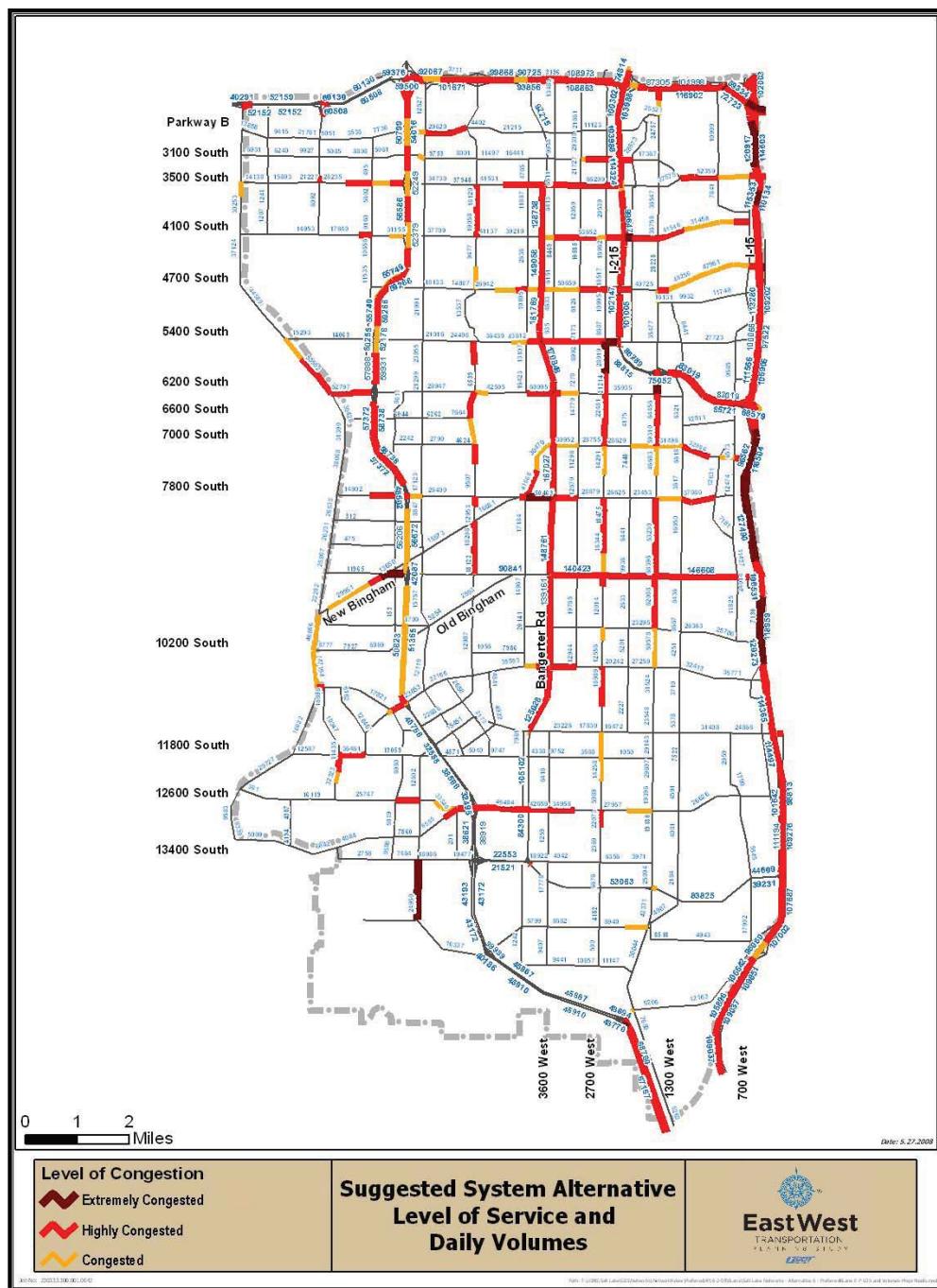
Table 8-14. Screenline Locations With LOS E or F

Screenlines	2030 Beyond	Suggested System Alternative	Percentage Reduction
North-South (80 Links)	40	23	43%
East -West (67 Links)	35	26	26%

Table 8-17 displays the travel time comparison between the 2030 Beyond and the Suggested System Alternative. The results show a sizeable improvement in travel time along all the analyzed corridors. Routes along Bangerter Highway, Redwood Road, and 9000 South benefit the most.



Figure 8-7. Suggested System Alternative Level of Service and Daily Volumes



**Table 8-15. Suggested System Alternative Screenlines Volumes and LOS—North-South Facilities**

Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	Screen Line	Location	2030 Model Volume	Adjusted 2030 Model Volume	LOS	
N1	SR 201	118876	101262	D	N3	SR 201	245687	201983	E	
	Parkway B	14354	11051	D		Parkway B	13130	20457	C	
	3100 South	14644	14672	E		3100 South	48563	73452	F	
	3500 South	44553	40511	D		3500 South	75765	75744	F	
	4100 South	36744	32018	C		4100 South	66418	70133	F	
	4700 South	24556	22039	C		4700 South	59780	58325	F	
	5400 South	17398	34989	D		5400 South	83925	105085	F	
	6200 South	29537	29576	C		6200 South	35935	29937	C	
	6600 South	7089	7142	D		7000 South	28629	28641	D	
	7000 South	2242	2227	C		7800 South	26625	27698	D	
	7800 South	30908	28453	D		9000 South	140423	158948	F	
	8200 South	3615	3574	C		9800 South	24887	20499	C	
	8600 South	554	4735	C		10400 South	20242	22659	D	
	New Bingham	10432	14930	C		11400 South	16472	16434	C	
	9000 South	84369	84217	D		11800 South	1050	1054	C	
	9800 South	1700	1685	C		12600 South	27957	21848	C	
	Old Bingham	5912	5889	C		13400 South	6356	6394	C	
	10200 South	23853	23876	C		Bangerter	53063	50876	B	
	MVC	81873	75592	C		14400 South	8940	13752	D	
	11400 South	27007	26995	C		MVC Arterial	11147	11110	E	
	11800 South	19732	19464	C		MVC	91777	91858	D	
	12600 South	34233	36545	F		Total	-	1086771	1106887	-
	13400 South	7464	7438	D		SR 201	218900	201962	E	
Total	-	641645	628880	-		3300 South	52359	64971	F	
N2	SR 201	201539	185484	E	N4	Meadow Br	31458	31514	E	
	Parkway B	4402	4398	C		Taylors	47961	47952	D	
	3100 South	11497	11530	C		Murray Ta	11748	11715	E	
	3500 South	41531	50251	E		5400 South	27723	40626	D	
	4100 South	41137	41116	D		I-215	168740	154705	E	
	4700 South	32220	32177	D		Winchester	12811	12865	F	
	5400 South	36430	36384	D		7000 South	32986	23445	D	
	6200 South	42505	39626	C		7800 South	37080	37049	F	
	7800 South	27136	32071	E		9000 South	146608	172211	F	
	New Bingham	16681	16662	C		9800 South	26363	26444	D	
	9000 South	90841	96360	D		10600 South	35771	35772	D	
	Old Bingham	2593	2598	C		11400 South	31408	31366	C	
	10200 South	26350	26332	C		12300 South	26626	33132	E	
	11400 South	33101	33177	C		Bangerter	83825	82581	D	
	11800 South	9747	9742	D		14600 South	4943	1848	C	
	12600 South	44612	44597	F		Total	-	997310	1010158	-
Total	-	805724	805956	-		Summary: 23 of 80 locations are over capacity				

**Table 8-16. Suggested System Alternative Screenlines Volumes and LOS—East-West Facilities**

Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	Screen Line	Location	2030 Model Volume	2030 Adjusted Model Volume	LOS	
E1	9200 West	31717	31727	C	E3	Hwy 111	31390	31549	C	
	8400 West	27663	27662	D		MVC	116110	106482	E	
	8000 West	8800	8800	D		6000 West	8531	8425	D	
	7200 West	25603	25565	D		5600 West	17477	17470	C	
	MVC	115030	105960	E		4800 West	13753	13754	D	
	5600 West	12527	12511	C		Bangerter	167027	167041	F	
	4800 West	27108	27186	D		3200 West	14494	18245	F	
	Bangerter	92215	103051	D		2700 West	21018	13610	D	
	3600 West	5530	8839	D		2200 West	4175	10002	E	
	3200 West	21861	18836	D		Redwood	59310	54126	F	
	2700 West	66	559	C		1300 West	14670	13177	F	
	I-215	204290	172744	D		700 West	15334	15408	F	
	Redwood	43763	52656	F		I-15	243022	219354	F	
	900 West	10909	21332	D		Total	-	726311	688643	-
	I-15	233384	209659	F		8400 West	25807	25866	C	
Total	-	860466	827087	-		6000 West	2173	2139	C	
E2	Hwy 111	37124	37051	C	E4	MVC	112878	103726	D	
	6400 West	11535	11536	D		New Bingham	15573	15500	C	
	MVC	115015	105079	D		5600 West	25570	25508	D	
	5600 West	21511	26649	D		4800 West	18122	18180	F	
	4800 West	14760	9896	D		4000 West	14687	14745	F	
	4000 West	13919	13913	F		Bangerter	148761	126490	F	
	Bangerter	149058	149045	F		3200 West	13638	37684	F	
	3600 West	6151	6068	D		2700 West	16344	22372	F	
	3200 West	10026	10039	E		2200 West	9936	9940	D	
	2700 West	18517	18489	C		Redwood	68396	72834	F	
	I-215	206295	188499	E		1300 West	8436	5433	D	
	2200 West	10004	9940	D		700 West	11427	6969	D	
	Redwood	38406	48486	E		I-15	258139	232329	F	
	500 West	12637	12677	F		Total	-	749887	719715	-
	I-15	223313	197533	F		MVC	86365	77707	C	
Total	-	888271	844900	-		4000 West	1795	1774	C	
Summary:						3600 West	17778	9148	D	
26 of 67 locations are over capacity						2700 West	4182	3668	C	
						Redwood	42331	29118	C	
						1300 West	2184	2175	C	
						700 West	5545	5571	D	
						500 West	3412	3409	C	
						I-15	212946	196145	E	
					Total	-	376538	328715	-	

**Table 8-17. Corridors Travel Time Comparison**

Route No.	Route Name	From	To	Description	2030 Beyond		Alternative 6
					(minutes)	(minutes)	
1	3500 South	U-111	I-15		28.94	22.04	
2	5400 South	U-111	I-15		30.98	22.75	
3	6200 South	5600 West	Redwood Rd		17.75	11.26	
4	7800 South	U-111	I-15		31.57	23.85	
5	10600 South	Bangerter Hwy	I-15		14.23	9.10	
6	12600 South	U-111	I-15		25.68	21.43	
7	Bangerter Hwy	I-15	SR-201		45.41	25.57	
8	Redwood Rd	Bangerter Hwy	SR-201		47.53	36.69	
9	Jordan Landing	Jordan Landing	SR-201	NB Bangerter from 7800 South	26.61	12.00	
10	Jordan Landing	State St	EB 7000/7200 South		20.23	14.11	
11	Sandy	South Jordan	WB 9000 South (State St to Redwood Rd) SB Redwood Rd (9000 South to 10600 South)		19.28	13.48	
12	Herriman	I-15	EB 12600 South (6000 West to I-15)		19.08	13.25	
13	Herriman	West Valley City	EB 13400 South (6000 West to Bangerter Hwy) NB Bangerter Hwy (13400 South to 3500 South)		45.70	25.91	
14	Bluffdale	I-15	EB 14400/14600 South (Redwood to I-15)		5.51	4.69	
15	Day Break	I-15	NB Bangerter (114000South to 10400/10600 South) EB 10400/10600 South (Bangerter Hwy to I-15)		16.58	11.01	
16	9000 South	4000 West	I-15		17.98	5.51	

Note: Route 16 (This is the mainline travel time, not the frontage road)



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Table 8-18 displays the VMT and VHT by facility types for the 2030 Beyond and the Suggested System Alternative. Although the VMT increases slightly under the Suggested System Alternative (which is expected because of the proposed freeway improvements), the VHT decreases significantly, thus increasing the overall system travel speed from 39.31 mph to 47.40 mph.

Table 8-18. VMT and VHT

2030 Beyond			
	VMT	VHT	Avg. Speed
Freeways	12,495,196	264,968	47.16
Highways	1,014,219	28,481	35.61
Principal Arterial	2,548,138	86,017	29.62
Minor Arterial	3,477,740	130,631	26.62
Collectors	1,558,938	67,929	22.95
Study Area Total	21,094,231	578,026	39.31
Alternative 6 Suggested System Alternative			
	VMT	VHT	Avg. Speed
Freeways	14,681,939	269,730	54.43
Highways	15,217	319	47.65
Principal Arterial	2,298,714	75,196	33.23
Minor Arterial	2,280,657	94,510	29.85
Collectors	1,331,867	54,270	24.54
Study Area Total	21,348,394	494,025	47.40